

IN THE CLAIMS:

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Cont.

1. (Previously Presented) A magnetic disk apparatus comprising a magnetic head formed by stacking thin films, a rotated magnetic disk, and a means for positioning said magnetic head relative to said rotated magnetic disk, wherein said magnetic head comprises a first magnetic pole and a recording magnetic pole, and, at a position on said magnetic disk where the angle  $\theta$  between the rotating direction of said magnetic disk and the film thickness direction of said recording magnetic pole is maximum, the length of the projection of said recording magnetic pole onto the magnetic disk surface as measured along the radial direction of said magnetic disk is not more than the track pitch of said magnetic disk, wherein the shape of said recording magnetic pole as viewed from a sliding surface of said magnetic disk comprises a first side, a second side faced to the first magnetic pole on the opposite side of the first magnetic pole, and a third side intersecting said first and second sides.

2. (Previously Presented) A magnetic disk apparatus comprising a magnetic head, and a rotated magnetic disk, wherein said magnetic head comprises a first magnetic pole and a recording magnetic pole, said first and recording magnetic poles have faced portions forming a recording gap therebetween, and the shape of projection of said recording magnetic pole onto said magnetic disk comprises a first side intersecting said faced portions, a second side faced to the first magnetic pole or on the opposite side of the first magnetic pole, and a third side intersecting said first and second sides, the length of the projection of said recording magnetic pole onto the magnetic disk surface as measured along the radial direction of said magnetic disk is not more than the track pitch of said magnetic disk.

3. (Previously Presented) A magnetic disk apparatus comprising a magnetic head having a magnetic pole formed by stacking thin films, a rotated magnetic disk, and a means for

positioning said magnetic head relative to said magnetic disk, wherein, at a position on the recording disk where the angle  $S$  between the rotating direction of said magnetic disk and the thickness direction of said thin films constituting said magnetic pole is maximum, the sum of  $P \times \sin(S)$  and  $W \times \cos(S)$  is not more than the track pitch of said magnetic disk, where  $P$  is the film thickness of said magnetic pole and  $W$  is the width of said magnetic pole.

4. (Previously Presented) A magnetic disk apparatus as set forth in claim 3, wherein said magnetic pole comprises said first magnetic pole and a recording magnetic pole, and, at a position on said magnetic disk where the angle  $S$  between the rotating direction of said magnetic disk and the film thickness direction of said recording magnetic pole is maximum, the sum  $P \times \sin(S)$  and  $W \times \cos(S)$  is not more than the track pitch of said magnetic disk, where  $P$  is the film thickness of said recording magnetic pole and  $W$  is the width of said recording magnetic pole.

5-7. (Canceled).

8. (Previously Presented) A magnetic disk apparatus as set forth in claim 1, wherein said third side is disposed on the opposite side faced to the first magnetic pole and wherein said magnetic disk apparatus is a longitudinal magnetic recording apparatus.

9. (Previously Presented) A magnetic disk apparatus as set forth in claim 1, wherein said third side is on the side faced to the first magnetic pole and wherein said magnetic disk apparatus is a perpendicular magnetic recording apparatus.

10. (Previously Presented) A magnetic disk apparatus according to claim 2, wherein said magnetic head comprises a first magnetic pole and a recording magnetic pole, and, at a position on said magnetic disk where the angle  $S$  between the rotating direction of said magnetic

disk and the film thickness direction of said recording magnetic pole is maximum, the length of an overlapped area of the projection of said second magnetic pole onto the magnetic disk surface and track width of said magnetic disk is not more than 5% of said track width, said overlapped area has a width with which the recording magnetic pole overlaps a track adjacent to a recording track.

11. (Withdrawn) A method of recording information wherein, at the time of modifying or appending information, the modified or appended information is stored in a sector different from a sector in which previously recorded information is present, without overwriting a part or the entire body of said sector in which said previously recorded information is present.

12. (Previously Presented) A magnetic disk apparatus as set forth in claim 2, wherein said third side is disposed on the opposite side facing the first magnetic pole and wherein said magnetic disk apparatus is a longitudinal magnetic recording apparatus.

13. (Previously Presented) A magnetic disk apparatus as set forth in claim 3, wherein said third side is disposed on the opposite side facing the first magnetic pole and wherein said magnetic disk apparatus is a longitudinal magnetic recording apparatus.

14. (Previously Presented) A magnetic disk apparatus as set forth in claim 2, wherein said third side is disposed on the side facing the first magnetic pole and wherein said magnetic disk apparatus is a perpendicular magnetic recording apparatus.

15. (Previously Presented) A magnetic disk apparatus as set forth in claim 3, wherein a third side intersecting said first and second sides is disposed on the side facing the first magnetic pole and wherein said magnetic disk apparatus is a perpendicular magnetic recording apparatus.

16. (Previously Presented) A magnetic disk apparatus comprising a magnetic head formed by stacking thin films, a rotated magnetic disk, and a means for positioning said magnetic head relative to said rotated magnetic disk, wherein said magnetic head comprises a first magnetic pole and a recording magnetic pole, and, at a position on said magnetic disk where the angle  $S$  between the rotating direction of said magnetic disk and the film thickness direction of said recording magnetic pole is maximum, the length of the projection of said recording magnetic pole onto the magnetic disk surface as measured along the radial direction of said magnetic disk is not more than the track pitch of said magnetic disk.

17. (Previously Presented) A magnetic disk apparatus as set forth in claim 16, wherein a third side is disposed on the opposite side faced to the first magnetic pole, wherein said magnetic disk apparatus is a longitudinal magnetic recording apparatus.

18. (Previously Presented) A magnetic disk apparatus as set forth in claim 16, wherein a third side is disposed on the side faced to the first magnetic pole wherein said magnetic disk apparatus is a perpendicular magnetic recording apparatus.